e- $T = \dfrac{U_{sm}}{U_{em}} = \dfrac{3}{6} = 0,5$

$G = 20\log T = -6dB$

3- $\cos\Delta\varphi = \dfrac{R0 + r}{Z} \Rightarrow r = Z\cos\Delta\varphi - R_0 = 20\Omega$

• $tg(\varphi_i - \varphi_e) = \dfrac{\dfrac{1}{c\omega} - L\omega}{R_0 + r}$ Or $\varphi_i = \varphi_s = -\varphi_4$ et $\varphi_e = 0$

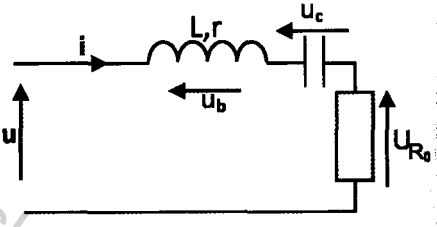
$\Rightarrow \dfrac{1}{c\omega} = (R_0 + r)tg(\varphi_s) + L\omega$

$C = \dfrac{1}{500\left[0,4\times 500 + 70tg\left(-\dfrac{\pi}{4}\right)\right]} = 15,38.10^{-6}F$

Partie B :

En appliquant la loi des mailles on peut écrire

$u - u_b - u_e - u_{Ro} = 0$



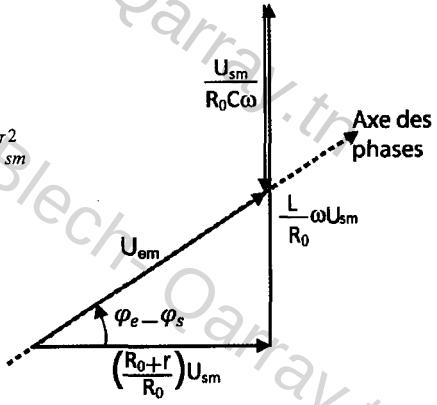
$ri + L\dfrac{di}{dt} + \dfrac{q}{c} + Roi = u$

$or \quad q = \int idt \quad et \quad i = \dfrac{U_{Ro}}{R_o} = \dfrac{U_s}{R_o}$

$\Rightarrow \left(\dfrac{Ro + r}{Ro}\right)u_s + \dfrac{L}{Ro}\dfrac{dus}{dt} + \dfrac{1}{R_oC}\int u_s dt = u(t)$

2-a. Pour une fréquence $N > N_0$

(Figure)



$U_m^2 = \left[\left(\dfrac{R_o + r}{R_o}\right)U_{sm}\right]^2 + \left[\dfrac{L\omega}{R_o} - \dfrac{1}{R_oc\omega}\right]^2 U_{sm}^2$

$U_m^2 = \left[\left(\dfrac{R}{R_O}\right)^2 + \left(\dfrac{L\omega}{R_0} - \dfrac{1}{R_oc\omega}\right)^2\right]U_{sm}^2$

Avec $R = R_O + r$

Qarray.tn -Aqra Blech- Qarray.tn